Claims:

1. (Canceled).

2. (Canceled).

3. (Canceled).

4. (Canceled).

5. (Canceled).

6. (Canceled).

7. (Canceled).

8. (Canceled).

9. (Canceled).

10. (Canceled).

11. (Currently Amended) A method of substantially recreating a binaural impression of sound perceived by a first

listener from an audio source for a plurality of other listeners, such method comprising the steps of:

determining a first transfer function matrix which creates the binaural impression perceived by the first listener from the audio source at a location of the first listener;

determining a second transfer function matrix which creates the binaural impression for each listener of the plurality of other listeners at locations different from the location of the first listener; and

solving for a transfer function matrix using the first transfer function matrix and the second transfer function matrix which presents the binaural impression from the source to each listener of the plurality of other listeners wherein the plurality of other listeners all listen simultaneously.

12. (Original) The method as in claim 11 further comprising the step of processing an input audio signal using the solved transfer function.

13. (Original) The method as in claim 12 further comprising the step of supplying the processed audio signal to a set of speakers.

14. (Currently Amended) A method of reformatting a binaural signal perceived by a first listener for presentation to a plurality of ~~other~~ listeners, such method comprising the steps of:

receiving as an input a first set of spatially formatted audio signals which creates a binaural sound having a desired spatial impression through a speaker layout to the first listener;

determining a first transfer function matrix which creates the desired spatial impression to a set of ears of the first listener through the speaker layout which includes a plurality of speakers;

calculating a second transfer function matrix for each input signal of the first set of spatially formatted audio signals which creates the desired spatial impression through the speaker[[s]] layout at the ears of each listener of the plurality of ~~other~~ listeners; and

processing the first set of spatially formatted audio signals using the first transfer function matrix and the calculated second transfer function matrix to produce a second set of spatially formatted audio signals; and

creating binaural sound having substantially the desired spatial impression at the ears of each listener of the plurality of listeners by applying the second set of spatially

formatted audio signals to the plurality of speakers of the speaker layout wherein the plurality of listeners all listen simultaneously.

15. (Original) The method as in claim 14 further comprising removing cross-talk cancellation from the first set of spatially formatted audio signals to recover a stereo signal.

16. (Currently Amended) The method as in claim 14 wherein the step of receiving as an input a first set of spatially formatted audio signals further comprises receiving a stereo audio signal.

17. (Currently Amended) A method of reformatting a binaural signal perceived by a first listener for presentation to a plurality of ~~other~~ listeners, such method comprising the steps of:

receiving as an input a first set of spatially formatted audio signals which creates binaural sound having a desired spatial impression through a speaker layout to the first listener ~~at a first location~~;

determining a first transfer function matrix which creates the desired spatial impression to the first listener ~~at~~

~~the first location~~ through the speaker layout which includes at least one speaker;

calculating a second transfer function matrix for each input signal of the first set of spatially formatted audio signals to create the desired spatial impression to the ~~other~~ plurality of listeners through a plurality of speakers; and

processing the first set of spatially formatted audio signals using the first transfer function matrix and the calculated second transfer function matrix to produce a second set of spatially formatted audio signals; and

creating binaural sound having substantially the desired spatial impression for the benefit of each listener of the plurality of ~~other~~ listeners by applying the second set of spatially formatted audio signals to the plurality of speakers wherein the plurality of listeners all listen simultaneously.

18. (Original) The method of recreating the binaural impression as in claim 17 further comprising the step of locating the first listener and plurality of other listeners in separate acoustic spaces.

19. (Original) The method of recreating a binaural impression as in claim 18 in which one of the separate acoustic

spaces instead of comprising a physical space further comprises a conceptual or simulated space.

20. (Currently Amended) A method of substantially recreating an acoustic perception of a listener in a first space for a listener in a second space whereby the perception in the first space is caused by one or more excitation signals being applied through a first matrix of transfer functions to one or more loudspeakers, the method comprising the steps of:

determining a second matrix of transfer functions from the loudspeakers in the first space to the ears of the listener in the first space;

determining a third matrix of transfer functions from more than ~~three~~ four loudspeakers in the second space to the ears of the listener in the second space;

determining a fourth matrix of transfer functions from the first, second, and third matrices which recreates the acoustic perception of the listener in the first space for the listener in the second space;

applying the excitation signal or signals to an electronic implementation of the fourth matrix and in turn to the loudspeakers in the second space, for the benefit of the listener in the second space;

where at least some of the elemental transfer functions of the second, third, and fourth matrix of transfer functions are derived from model head-related transfer functions.

21. (Original) The method of recreating an acoustic perception as in claim 20 further comprising separating the fourth matrix of transfer functions into a plurality of matrices which together form an equivalent of the fourth matrix of transfer functions.

22. (Original) The method of recreating an acoustic perception as in claim 21 wherein the step of separating the fourth matrix of transfer functions into the plurality of matrices of transfer functions further comprises separating the fourth matrix into a product of two matrices.

23. (Original) The method of recreating an acoustic perception as in claim 22 wherein the step of separating the fourth matrix into the plurality of matrices of transfer functions further comprises separating the fourth matrix into a sum or difference of two matrices.

24. (Original) The method of recreating an acoustic perception as in claim 20 wherein the step of determining the

fourth matrix of transfer functions further comprises populating at least some matrix locations of the fourth matrix with realizable and stable filter elements.

25. (Currently Amended) A method of substantially recreating one or more acoustic perceptions of listeners in a first space for more than one listener in a second space whereby the one or more acoustic perceptions in the first space ~~is~~ are caused by one or more excitation signals being applied through a first matrix of transfer functions to one or more loudspeakers, such method comprising the steps of:

determining a second matrix of transfer functions from the loudspeakers in the first space to the ears of the listeners in first space;

determining a third matrix of transfer functions from a plurality of loudspeakers in the second space to the ears of the listeners in the second space;

determining a fourth matrix of transfer functions from the first, second, and/or third matrices which recreates the one or more acoustic perceptions of listeners in the first space for the listeners in the second space;

applying the excitation signal or signals to an electronic implementation of the fourth matrix and in turn to the

loudspeakers in the second space, for the benefit of the listeners in the second space; and

where at least some of the elemental transfer functions of the second, third, or fourth matrix of transfer functions are derived from model head-related transfer functions wherein the one or more acoustic perceptions of the listeners in the second space are recreated simultaneously and wherein the plurality of other listeners all listen simultaneously.

26. (Original) The method of recreating one or more acoustic perceptions as in claim 25 further comprising locating a listener of the first space and a listener of the second space in the same space.

27. (Currently Amended) A method of substantially recreating a plurality of acoustic perceptions of a plurality of listeners in a first space for one or more listeners in a second space whereby the perceptions in the first space are caused by one or more excitation signals being applied through a first matrix of transfer functions to one or more loudspeakers, the method comprising the steps of:

determining a second matrix of transfer functions from the loudspeakers in the first space to the ears of the plurality of listeners in the first space;

determining a third matrix of transfer functions from a plurality of loudspeakers in the second space to the ears of the one or more listeners in the second space;

determining a fourth matrix of transfer functions from the first, second, and/or third matrices for recreation of the plurality of acoustic perceptions in the second space;

applying the excitation signal or signals to an electronic implementation of the fourth matrix and in turn to the loudspeakers in the second space, for the benefit of the ~~listener or~~ one or more listeners in the second space, and to recreate the acoustic perceptions of the listeners in the first space in the respective ears of the one or more listeners in the second space;

where at least some of the elemental transfer functions of the second, third, and fourth matrix of transfer functions are derived from model head-related transfer functions, wherein the acoustic perceptions of the listeners in the second space are recreated simultaneously and wherein the plurality of listeners in the second space all listen simultaneously.

28. (Original) The method of recreating a plurality of acoustic perception as in claim 27 wherein at least some matrices of the first, second, third, and fourth matrices comprises a product of two matrices.

29. (Original) The method of recreating a plurality of acoustic perceptions as in claim 27 further comprising separating the fourth matrix into a plurality of matrices which together form an equivalent of the fourth matrix.

30. (Original) The method of recreating a plurality of acoustic perceptions as in claim 29 wherein the step of separating the fourth matrix into the plurality of matrices further comprises separating the fourth matrix into a product of two matrices.

31. (New) A method of substantially recreating an acoustic perception of a listener in a first space for a plurality of listeners in a second space whereby the perception in the first space is caused by one or more excitation signals being applied through a first matrix of transfer functions to one or more loudspeakers, the method comprising the steps of:

determining a second matrix of transfer functions from the loudspeakers in the first space to the ears of the listener in the first space;

determining a third matrix of transfer functions from at least three loudspeakers in the second space to the ears of the plurality of listeners in the second space;

determining a fourth matrix of transfer functions from

the first, second, and third matrices which recreates the acoustic perception of the listener in the first space for the plurality of listeners in the second space; and

applying the excitation signal or signals to an electronic implementation of the fourth matrix and in turn to the at least three loudspeakers in the second space, for the benefit of the plurality of listeners in the second space, wherein at least some of the elemental transfer functions of the second, third, and fourth matrix of transfer functions are derived from model head-related transfer functions and wherein the plurality of listeners in the second space all listen simultaneously.

32. (New) A method of substantially recreating an acoustic perception of a listener in a first space for a listener in a second space whereby the perception in the first space is caused by one or more excitation signals being applied through a first matrix of transfer functions to one or more loudspeakers, the method comprising the steps of:

determining a second matrix of transfer functions from the loudspeakers in the first space to the ears of the listener in the first space;

determining a third matrix of transfer functions from at least three loudspeakers in the second space to the ears of the listener in the second space;

determining a fourth matrix of transfer functions from the first, second, and third matrices which recreates the acoustic perception of the listener in the first space for the listener in the second space; and

applying the excitation signal or signals to an electronic implementation of the fourth matrix and in turn to the at least three loudspeakers in the second space, for the benefit of the listener in the second space, wherein at least some of the elemental transfer functions of the second, third, and fourth matrix of transfer functions are derived from model head-related transfer functions and wherein the second listener is not located symmetrically with respect to the at least three speakers.